

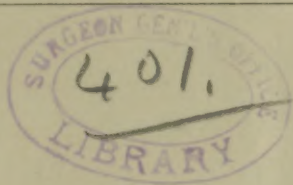
JONES (MARY A.D.)

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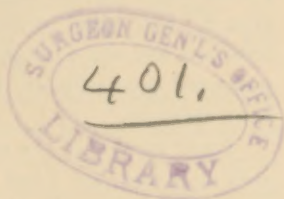
ANOMALOUS MENSTRUAL BODIES.

BY
MARY A. DIXON JONES, M. D.,
BROOKLYN.

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ANOMALOUS MENSTRUAL BODIES.

By MARY A. DIXON JONES, M. D.,

BROOKLYN.

IN an article of mine, published in the American Journal of Obstetrics, February, 1888, I quote from a letter I received from Dr. Paul F. Mundé, in which he says: "I beg to acknowledge the receipt of your very excellent article on Tait's operation. It seems to me that the indications in Tait's operation are quite different from those for Battey's, when the disease of the uterine appendages is but problematical, before and after the operation, which is performed for merely reflex neurotic conditions."

I quote from Sir Spencer Wells: "Oophorectomy or the removal of normal ovaries. I accept," said Sir Spencer, "the principle, but its introduction in mental and neurotic cases is only to be thought of after long trials of other tentative measures and the deliberate sanction of experienced practitioners."

I remark in the same paper: "I shudder at the thought of removing 'normal ovaries,' or when the disease is 'problematical.' I would not remove normal ovaries for dysmenorrhœa or for any suffering in the region of the ovaries.

I would not remove them for mental or neurotic disease, even if I had failed 'after long trials of other tentative measures, and had the cordial, full, and deliberate sanction of experienced practitioners,' unless I believed the appendages were diseased."

I add further in the same article: "I have never operated on a case, but I had full and substantial reasons to diagnose incurable disease of the uterine appendages." Dr. T. A. Emmet says in the *Medical Record* of December 28, 1889: "From the beginning I have been uncompromising in my opposition to the removal of the ovaries for dysmenorrhœa and other nervous disorders, due to perverted or impaired nutrition, and where the fault lies in the nerve centers."

Thus it will be seen that the position which I assumed from the first, and published nearly two years before the appearance of Dr. Emmet's article, is more conservative than is Dr. Emmet's position. He objects to the "removal of ovaries for dysmenorrhœa and other nervous disorders due to perverted or impaired nutrition, and where the fault lies in the nerve centers." I make the "uncompromising" sweep of excluding all cases from this operation except where there is hopeless disease of the organs themselves. That is, I denounce the removal of the uterine appendages for any cause, neurotic condition, constitutional disturbance, or for any reason except for incurable disease of the organs themselves. When thus hopelessly diseased they are a continual injury to the system, and their removal is a lasting benefit. I would not advise an operation in all cases, even where the uterine appendages are found to be hopelessly diseased, yet, as Dr. Emmet says, "it is an operation I never hesitate to perform when I think it is indicated"; *

* I understand that Dr. Emmet performed the operation the day after writing the article.

and, I will add, clearly for the welfare of the patient. No doubt other surgeons as carefully consider each case, and in like manner exercise their best judgment.

This operation is advised by many for bleeding myoma. In bleeding myoma, or in any case of fibroid tumor of the uterus, I believe the uterine appendages will invariably be found to be diseased, so all such cases might come under the head of incurable disease of the organs. This operation might also be suggested as desirable in case of a deformed or very contracted pelvis; but to remove healthy organs for any "grave" condition of the general system should not be thought of, and can not under any circumstances eventuate in any good, for the normal action and physiological function of healthy organs will always assist in restoring the system, in whatever way diseased, to a state of health.

Yet there must be cases of serious reflex neurosis that demand attention when so eminent and distinguished an authority as Professor T. G. Thomas cites instances. Of one case he says: "The insanity was confined to the period of ovulation, and after the removal of the uterine appendages the menstrual insanity was entirely relieved." A case of the same kind is reported by Dr. R. Stansbury Sutton, of Pittsburgh. He says: "After operation the patient's insanity soon disappeared and she remains free from mental disease and nervousness." Still there is no doubt that in all such cases a microscopical examination would show the uterine appendages to be diseased, and that this disease is the cause of the reflex irritation or neurotic conditions. Probably it may yet be demonstrated that these neurotic conditions are caused by anomalous menstrual bodies, and that operations in these cases are really for the removal of anomalous menstrual bodies, which are as much an abnormal growth as a tumor in any other part of the body.

The first operation I ever performed for the removal of diseased uterine appendages took place on May 12, 1883. The patient consulted me in October, 1882. She was then a mental and physical wreck; twice married and was never pregnant; had been for years under medical treatment, and was constantly growing worse. There were the most pronounced symptoms of ovarian and tubal disease; a large mass was on each side of the uterus, which was extremely sensitive, adherent, and bound in by adhesions. These conditions gave her constant and severe distress. Menstruation was accompanied by a delirium of pain and by repeated attacks of hystero-epilepsy. So great had been her sufferings that she had become a complete slave to the morphine habit. Her whole skin was apparently riddled by the hypodermic needle.

I continued her under treatment for a long time, hoping to remove the disease or alleviate her sufferings. She made no improvement. In no respect was she any better. In searching for a way to relieve this sick woman, this operation suggested itself to my mind. It was a revelation, a new thought, and the conclusion gradually forced itself upon me that this was the one thing to do for her, and the only way to relieve her sufferings or prolong her life. I requested Professor B. F. Dawson, of the New York State Woman's Hospital, to see the patient. He fully agreed with me as to the necessity of an operation, and advised that it be performed. Still I hesitated, I put it off, and put it off repeatedly; all the while the patient and friends were urging the operation. It finally took place on May 12, 1883; Professor Dawson kindly assisted and performed part of the operation. I was also assisted by two of the most eminent physicians and surgeons of Brooklyn—Dr. J. H. H. Burge and Dr. F. W. Rockwell—and by Dr. C. N. D. Jones.*

Even in such a case as this, with such profound neurotic conditions, with her extreme nervousness, the local pain, the hystero-epilepsy, and the periodical mania, I would not have

* This case was reported by Professor Dawson to the New York Obstetrical Society, and a written report by myself was published in the American Journal of Obstetrics, November, 1884.

removed the uterine appendages unless I had had reason to know that they were hopelessly diseased. The microscopical examination then made gave the diagnosis "oophoritis and pyosalpinx (interstitial)." Since knowing something of anomalous menstrual bodies, and remembering the clinical history, I was certain that they existed in this case, so, recently, I examined again the same microscopical slides and found there were large anomalous menstrual bodies in a state of intense inflammation, and in the midst of ovarian stroma equally inflamed. This was the disease that was destroying the woman's mental and physical life. Their presence explained the intense oophoritis and her peculiar nerve manifestations.

In every instance, in removing diseased structures or any kind of tumor by abdominal section, I have been interested and determined to know the exact pathological conditions, and thereby find out the cause of suffering and the nature of the disease. So I have pursued sedulously the microscopical study of every case, and these investigations have fully repaid me, not only in the wonderful and beautiful facts they have revealed, but by having enabled me the more intelligently to help suffering women.

In 1886, when I was studying the diseased structures of a case I had operated on in June, 1885, I first saw the peculiar form of degeneration which I described as endothelioma or alveolar sarcoma in the Medical Record for August 21, 1886, and as endothelioma in the New York Medical Journal for September 28, 1889. This growth is a profuse new formation of red blood-corpuscles and blood-vessels, mainly of capillary and venous nature, and at last terminating in what we know to be a hæmatoma of the ovary. This formation does not bulge over the surface of the ovary in a pronounced manner, though it often approaches the surface. It is sharply defined to the naked

eye by a peculiar bloody color, and in a few instances it has been found separated from the adjacent ovarian tissue by a layer of delicate loose connective tissue, admitting its enucleation.

In the last paper I stated that endothelioma took origin in anomalous menstrual bodies, both in the follicular wall and in the myxomatous tissue within the wall. I also stated the possibility that tortuous arteries, having become solidified and changed in fibrous connective tissue, in waxy degeneration, may likewise be a source of endothelioma.

Anomalous menstrual bodies are peculiar morbid changes, frequently present in women who have never borne children, and are invariably accompanied by pronounced bodily and mental suffering and usually by an incurable sterility. The word *cirsoma* has been proposed to designate endothelioma changing to *angioma* and *hæmatoma*. This word, however, meaning dilated and convoluted veins, is probably less appropriate for the designation of the morbid process under consideration than the word *gyroma*, which means a convoluted mass, and more accurately designates what I propose to describe. I therefore beg to submit the term *gyroma* for the title of the subject under consideration—namely, anomalous menstrual bodies.

In November, 1888, while studying the pathological specimens removed from a patient for whom I had performed an operation in October, 1888, I saw for the first time these apparently fibromatous formations which I now know to be anomalous menstrual bodies, and which I wish to designate "*gyroma*." This case was reported to the New York Pathological Society on December 12, 1888, and the following statement was made: "The right ovary was much enlarged, and most of it was occupied by a fibroid growth or tumor, while in other portions of the ovary there were a number of small nodular fibromata, in the neighbor-

hood of which the blood-vessels were much enlarged, probably by pressure."

Subsequent investigations have shown that what I then denominated "nodular fibromata" are anomalous menstrual bodies, or gyroma. (See Fig. 5, C, C.) It is a singular fact that gyroma is found in all cases where there is endothelioma, and that it is a frequent source of endothelioma, though it (gyroma) exists in many instances where there is not a trace of endothelioma. Both gyroma and endothelioma are the result of inflammation and produce inflammation. Both are not only always found accompanied by oophoritis, acute or subacute, but also are frequently accompanied by diseased and obstructed blood-vessels and by a diseased condition of the ova.

The clinical features of endothelioma are local pain, weakness, pallor, and progressive emaciation. The clinical features of gyroma are local pain, general exhaustion, and a most pronounced nervous and hysterical condition, with more or less mental disturbance. So characteristic are the nerve symptoms that, after studying gyroma and differentiating it as a distinct disease, I could go to my museum of pathological specimens and select at will a case of gyroma from these known clinical features.

The subject of normal and anomalous menstrual bodies is an almost unexplored field. It presents points not only of great scientific interest, but of momentous importance. It reveals the cause of the exhausting and untold suffering, which many women endure year by year, which renders their lives useless and which incapacitates them for life's active labors, developing other and more serious troubles, and finally carrying many to an early grave.

The normal remains of menstruation is a delicately corrugated formation or convoluted structureless membrane, of a highly refractive character, thrown into graceful folds

and imbedded in the ovarian stroma (see Fig. 2, O), and of itself could not possibly be a source of irritation or of the least disturbance in any way. This formation, convoluted or structureless membrane, from some cause sometimes becomes the seat of abnormal action, which is soon followed by grave pathological changes. First an inflammation commences in one part; other portions may as yet be entirely unchanged. This inflammation spreads, increases, and gradually invades all the convoluted formation. The whole of it becomes crowded with inflammatory corpuscles; the membrane grows thicker; the inflammatory corpuscles change to extremely dense fibrous connective tissue; then is deposited a waxy colloid basis substance, and thus the structureless membrane or the follicular wall becomes thicker and firmer till there is formed a broad, firm, convoluted wall, or, still progressing, there will be developed apparently a great nodular fibroma. (See Fig. 4, C, C, and Fig. 15, F.)

A similar inflammation excites like changes in other structureless membranes or follicles. Frequently in one portion of the ovary we find near together one, two, three, five, or six anomalous menstrual bodies, each in a state of active inflammation and surrounded by tissue equally diseased; indeed, between them there will be found no normal tissue, showing how the whole ovary may become entirely diseased and all normal structure destroyed by the presence of these bodies. An ovarian cyst is frequently seen in the midst of these anomalous menstrual bodies, the walls of which will invariably be found to be inflamed, and near by will be seen also the diseased blood-vessels, diseased ova, and the progressively changing ovarian tissue. Such pathological changes progress and increase till the whole ovary is abnormal and becomes the seat and source of intense suffering and of serious reflex neurosis.

Such formations as these would seem sufficient, by pressing upon the delicate ovarian stroma, to excite the most serious inflammation. But in every instance where this pathological change has been seen commencing in the follicle there was found an already existing inflammation in the ovarian tissue; and no doubt it was this previous inflammation which excited the abnormal action in the follicular wall. In every instance when I have seen anomalous menstrual bodies I have always found them surrounded by or in the midst of inflammatory reaction. Often when a little portion of a neighboring anomalous menstrual body is taken off by a razor it is found to be thickened, inflamed, and changed, and always imbedded in inflamed ovarian tissue. Sometimes the anomalous menstrual body or gyroma will be found stretched out at great length between the medulla and the cortex, with waxy walls and myxomatous tissue within, but always round it will be found the spreading zone of intense inflammation.

Sometimes the anomalous menstrual bodies are apparently rough, nodular masses; still around them is the ever-accompanying inflammation. In some instances the masses will be found to be waxy or changed into endothelioma; still there will be seen the surrounding inflammation, acute or subacute. Sometimes the pathological changes in the follicular membrane, which apparently is so inoffensive, begin by graceful little folds being wedged apart by a new formation of myxomatous tissue. The myxomatous tissue increases, the folds are widened and pushed farther apart, till there is a great field of myxomatous tissue and the delicate membrane is being transformed into a rough, convoluted wall surrounding this field. This was especially seen in the ovaries of Case IX.

In many instances the myxomatous tissue within the walls shows the highest degree of inflammation, new arte-

ries and veins are being formed, and, what is more curious, the inflamed myxomatous tissue seems to stretch beyond the walls of the follicle and apparently transforms large portions of the ovary into its own structure, which structure shows the same inflammatory action and the same new formation of blood-vessels and capillaries. This was seen in a patient who had a large orange-sized blood-cyst of the ovary. It was interesting to watch how the capillaries were formed from the tracts of myxomatous tissue through vacuolization of the solid cords.

The walls which surround this myxomatous tissue gradually grow wider, the tissue within gradually becoming less and less, till there is a mere trace, and finally the whole disappears and the space is taken up by the encroaching walls and there is formed one solid, rough mass, such as I first denominated "nodular fibromata" and now call gyroma.

Such changes of structure and new formations of morbid tissue must give rise to local trouble and to great constitutional disturbances. If anything would cause cancer of the ovary, the continual irritation of these nodular masses would seem to be sufficient, for continued irritation produces such inflammatory reaction that almost every structure of the ovary undergoes some abnormal change. Even the blood-vessels are so altered that they lose their muscular coat, become fibrous or waxy; the walls are enormously thickened, and their calibers are reduced to the size of a pin's point or entirely disappear. Such abnormal changes in the blood-vessels alone would produce great anatomical and physiological changes in the structure of the ovaries and disturb to the same extent the general health and constitution of the individual.

CASE I.—Patient consulted me in August, 1888. She was forty years of age, feeble, emaciated, cachectic, and very hysterical, suffering with "constant pain in the pelvis." Ten years

previously she had seen an eminent specialist in Philadelphia, who diagnosticated "inflammation of the ovaries." The disease had continued to increase, had exhausted the patient's vitality, and had produced serious nerve complications. On examination, I found great tenderness and soreness in the pelvis, the ovaries enlarged and in a state of chronic inflammation, the uterus fixed on the right side by shortening of the right broad ligament. I put her under treatment, using the well-known and recognized remedies and procedures; still the patient was sick and the ovarian disease was increasing. I was convinced that nothing would relieve her or restore her to health but removal of the diseased structures. The operation was performed in October, 1888. Soon after the patient showed greatly improved conditions, gaining in general health and strength. In a few weeks she was in a better state of health and freer from distress than she had been for years.

Microscopical examination* of the ovary showed several forms of degeneration. Much of the ovarian structure was broken down into endothelioma; there were found calcified globular deposits of lime salts, and between the angular protoplasmic bodies were bone corpuscles. Besides, there were structural changes as the result of oophoritis; the blood-vessels were in a state of endarteritis obliterans, with waxy degeneration; there was kirsoid aneurysm of the arteries (see Fig. 8); the ova were in retrograde process, many of them breaking up into medullary corpuscles, and, finally, much of the ovary was changed to gyroma.

The Fallopian tubes were in a state of atrophy from chronic salpingitis.

This patient had originally a good constitution, having been a remarkably healthy woman, and was the mother of eight children. Several of her confinements had been followed by mild attacks of septicaemia, and at one the septicaemia had induced a severe peritoneal inflammation. This had caused or increased the disease of the ovaries and tubes,

* The microscopical studies in all the cases were conducted in Dr. Charles Heitzman's laboratory.

and perhaps had also caused the gyromatous formations, which had further increased the oophoritis, and had thus not only destroyed her health and comfort, but had induced in a woman otherwise so prolific an incurable sterility.

Around and with a parturient woman there should be as aseptic conditions as for an operation. I have sometimes thought that an obstetrician should be an antiseptic surgeon, for at that time, in an untold number of instances, are induced those conditions which not only make a woman a life-long sufferer, but make her sterile for life. Frequently in taking the medical history of a patient we find that she had probably one or two children in early married life and none since. As a patient said to me: "I had one child ten months after marriage, and the seven years since have been years of sickness and misery." Here was a woman of good constitution, capable of being the mother of half a dozen or more children and still have good health, instead of which now, at the age of twenty-six, she is an invalid, "*et une femme stérile*," all from sepsis at confinement.

There are many such women. Some pass to an early grave, a few are relieved and restored to health by an operation. Then we are told the woman had been "unsexed" and made "sterile." This is in no respect true. Disease had already made the woman sterile and had as much destroyed her capability of bearing children as if the organs did not exist. Removing the diseased organs does not unsex a woman. If so, disease may unsex a woman. Are we to say a woman is unsexed because she is physically unable to bear children? I said in an article published in the Medical Record, August, 1886: "Removing diseased uterine appendages is *only removing a cause of suffering* and restoring a woman from invalidism to the possibilities of life and labor."

CASE II.—A young woman, twenty-six years old, the mother of three children, consulted me in 1887: said she suffered with almost constant pain in the back and most intense pain in the pelvis, especially on the left side—so severe “she could not attend to her work, had an indisposition for any kind of exertion, and the marital relations gave her terrible pain.” For months she had been under the treatment of excellent physicians; one proposed aspirating her on the left side, etc. From all the excellent treatment she had experienced no benefit. Besides minor troubles, the ovaries were found to be enlarged, extremely sensitive, and gave indications of certain structural changes. I was convinced that the only way to restore her to health was the removal of the structurally diseased organs, and I so informed the patient; also told her she was incapable of bearing children, with or without an operation. She desired to have the operation; she made an excellent recovery, and afterward frequently expressed herself as to how improved were her conditions.

Macroscopical Appearance.—Ovaries of three or four times their normal size. Over the whole surface of both were prominences of about the size of a pea, having the appearance of cysts, but they were not. On section, the right ovary showed one large cyst occupying one half of the cut surface of the ovary. The left ovary showed the same condition. Both tubes were full of blood.

Microscopical Examination.—In each ovary there was a large endotheliomatous growth, and around it the tissues were in a state of subacute oophoritis. There were many large anomalous menstrual bodies, the thick walls of which were in a high degree of inflammation; even the myxomatous tissue within the walls was inflamed, filled with inflammatory corpuscles, and in many there was a new formation of blood vessels. The few cysts were surrounded by layer after layer of inflammatory tissue, showing different stages or repeated attacks of inflammation. The walls of the blood-vessels were enormously thickened, some in waxy degeneration and others so changed to fibrous connective tissue that there was scarce a trace of muscle fiber left. Even the endothelia of the blood-vessels were changed to fibrous connective tissue. The ova showed the

usual retrograde condition, breaking up into medullary corpuscles. The Fallopian tubes were in a state of interstitial salpingitis. There were false membranes around them from old peritoneal adhesions.

No doubt the commencement of this woman's suffering and the cause of her trouble was puerperal sepsis at her last confinement.

CASE III.—A slight, feeble, emaciated woman, thirty-one years of age, weight sixty or seventy pounds, worn out with suffering, and complaining of constant pain in the pelvis. The uterine appendages were enlarged, low down in Douglas's *cul-de-sac*, and so exceedingly sensitive that the slightest touch gave distress, and severe pressure caused fainting and convulsions. The patient said she had constant soreness and sharp shooting pains; that she could not stand up, could not sit squarely on her chair; that locomotion and defecation were both painful, and the sufferings at the menstrual period were most extreme, the pain commencing ten days before, leaving the patient perfectly exhausted. Besides this, menstruation was frequently accompanied by attacks of hystero epilepsy.

Before marriage this woman had never had a day's sickness or an hour's pain at the menstrual period. After marriage, in quick succession she had three children; the youngest at this time was seven years of age; and from the birth of this child her sufferings commenced. I am firmly convinced that at that time commenced the gyroma, or the formation of anomalous menstrual bodies, which resulted from septic inflammation, and in turn excited renewed inflammation. The gyroma, with the increasing inflammation, caused the enlargement, the subsequent misplacement, and thus these complications, reacting upon each other, rendered the patient's conditions more and more deplorable.

When she came to me she had had much medical treatment and I tried further its efficacy, but soon saw that nothing could cure these organs; no instrument could hold them in position; nothing would relieve the woman but an operation. She and her husband both insisted upon its being performed. She recovered without a bad symptom; in three weeks had convalesced suffi-

ciently to leave the hospital, and since has been able to attend to her family and to her household duties. She wrote in April, 1889: "I am now well, can walk five miles on a stretch, and am able to do my work for nine in the family."

In my description of the removed ovaries I said they were "large, hard, and nodular." The microscopical examination showed the same characteristics as in the preceding cases—viz., gyroma, intense inflammation, diseased blood-vessels, etc. A very remarkable feature was that many of the ova were in a state of waxy degeneration, and in some places the whole Graafian follicle was reduced to a large waxy mass, containing colloid corpuscles in concentric layers.

CASE IV.—Twenty-seven years of age, six years married, no children. Her whole married life had been a period of invalidism; even during the early menstrual period she gave indications of ovarian trouble, which continued year by year, increasing till the named organs were the seat of almost constant pain, at times of intense agony, the patient not being able to do anything, and her life rendered utterly useless. This severe and continued suffering was wearing her out mentally and physically. During one of her "attacks of inflammation of the uterus" twenty-four blisters were applied to the abdomen, and at the end of four months she said she "was not able to walk across the room." Another time, after being sick and confined to her bed a year, she attempted to walk half a block, and said she "was a week recovering from it." No doubt these "attacks" were attacks of inflammation of the ovaries and local peritonitis.

The patient was becoming more and more an invalid. From examination, the uterus was found in extreme retroversion, held down by enlarged and diseased ovaries, which were extremely sensitive, the slightest touch giving pain and producing nausea, and any force sufficient to replace the uterus or the ovaries would have produced extreme distress and suffering. It was a question: Diseased ovaries or years of usefulness, a surgical op-

eration or continued suffering? The ovaries were removed and the patient made a good recovery, and since her health has been gradually improving.

The ovaries of this patient were five or six times their normal size, surface slightly lobated, and microscopical examination showed that they were, in a most remarkable manner, filled with gyroma. The gyroma appeared in the form of immense convolutions, three times the diameter of those represented in Fig. 4, and by their winding and turning they filled large portions of each ovary. These convolutions were made up of dense fibrous connective tissue, whose bundles were arranged in a markedly radiating direction, in some places in hyaline degeneration. A highly prominent feature is the presence of several ducts of Pfluger, both in transverse and longitudinal direction, lined with the characteristic columnar epithelia, and holding in their cavities coagulated albumin. The arteries in the medullary portion were tortuous in the highest degree, and exhibited, without exception, waxy degeneration in the middle coats. The cysts were surrounded by a zone of inflammatory corpuscles, and from their walls branching papillary vegetation bulged into the cavity of the cysts. Some of the ova were broken up into medullary corpuscles; between the gyroma there were spaces of myxomatous tissue as represented in Fig. 6. Is it any wonder that ovaries whose normal structure was so destroyed should be the seat of suffering and fail in performing their physiological functions, and that the woman should be sterile and an invalid?

The gyroma was not only a source of suffering, but a cause of continually increasing disease. They had already seriously injured her nervous organization, were working still more destruction, and I believe, finally, would have sent her to the insane asylum.

Sections carried through the fimbriated extremity of the tube showed the presence of false membranes from old peritonitis.

CASE V.—A woman who gave her age as thirty-nine, married some years, without children, says that for years she has had "pain in the region of the ovaries and in her back; constantly such a distress that she could not do her household

work." Upon microscopical examination, both ovaries were found to be filled with gyroma, which had displaced almost entirely all the normal structures of the ovary. Fig. 4 is a representation of the growth in the ovaries of this woman. The portion of ovarian structure that remained was in a state of intense acute oophoritis. From the pressure of this growth the blood-vessels had become tortuous and more or less obstructed. The walls of many of them were in a state of waxy degeneration. In many instances blood was found in the arteries, which could only result from a complete obstruction in some portion. Many of the large fibromatous formations were breaking down into endothelioma.

CASE VI.—One day a patient came to my clinic. Nine years she had suffered pain, sometimes agonizing; nine years she had been married and had no children. She had the same cachectic look, the same constitutional disturbance, the same inability for any kind of continued labor or employment. Her case was complicated with long-standing pyosalpinx, in consequence of which the diseased structures were buried in a mass of dense adhesions; also by these they were bound firmly to the floor of the pelvis, and in some portions to the alimentary canal, involving the appendix vermiformis. The operation was one of great difficulty. The ovaries were found in a state of sub-acute oophoritis, and contained many anomalous menstrual bodies, some of them waxy, some were breaking down into endothelioma, and many were surrounded by firm layers of secondary fibrous connective tissue, which could have resulted only from long-existing and repeated attacks of inflammation. All the blood-vessels and the ova were found diseased. These conditions explained the cause of the patient's intense suffering and of her sterility.

CASE VII.—Another patient had been treated for seven months at the dispensary of the Woman's Hospital. I saw her first in December, 1886, when I returned from Europe. She had local pain and emaciation, looked cachectic, and had disturbed nerve and mental conditions. I said to the physician in charge that I did not believe any treatment would cure her, and delaying an operation was only endangering her life. The seven

months' faithful attention had not accomplished anything. In January, 1887, I removed the diseased ovaries. She did well. I saw her a month after; she had improved. I did not see her again until July, 1889; the woman was so very much improved that one would not have recognized her, or imagined she ever had been sick.

CASE VIII.—In the same year I operated on another patient, who had not only great suffering, but her mental conditions were so disturbed that her friends thought she was becoming insane. She frequently said "she felt as if she would go mad, as if she must kill some one, or do something desperate." The ovaries in this case were found to be full of anomalous menstrual bodies, surrounded by layers of new fibrous connective tissue, on which evidently had been ingrafted repeated and new attacks of inflammation. I saw this patient again in August, 1889; she was apparently well, and gave every indication of good health, both of body and mind.

CASE IX.—A young girl, twenty-six years of age, who said she had been sick for five years, unable to work, could not sleep, and she wrote: "I have been in this country five years, and I can say I never had a well day, and continually growing worse." The right ovary in this case was enlarged into a cyst, and both ovaries contained forming gyromata. The ova contained colloid corpuscles. The Fallopian tubes were in a state of interstitial inflammation. This patient made a good recovery, and afterward wrote she "was glad that she had had the operation; that she was now able to work."

CASE X.—A patient consulted me in June, 1884. She was then twenty years of age, single, had been an invalid seven years; once did not leave her bed for a period of eighteen months. She suffered with constant pain in the pelvis, was extremely hysterical, and her mental condition so much disturbed that she had talked of suicide, "threatening to kill herself and all the family." I found the ovaries enlarged, extremely sensitive, and pushed down behind a completely retroverted uterus. She told me she had had twenty-one doctors, and eighteen different kinds of pessaries had been applied.

I had her under treatment, local and constitutional, for

some months, at the end of which time I could not see that she was in any essential respect improved. I rather thought the disease was advancing, and I was fully convinced that nothing would help her but an operation. I requested Professor Gill Wylie, of New York, to see her. He advised the operation without delay. It was performed in October, 1884. I was assisted by Professor Gill Wylie and by Dr. C. N. D. Jones. Dr. J. Merrit administered the ether.

The diagnosis then made by microscopical examination was "oophoritis and salpingitis." Lately considering this patient's history and her symptoms, I was certain she had gyromata or anomalous menstrual bodies; so again I examined the same microscopical slides, and found that much of the ovary was occupied by this growth.*

The operation was the only procedure that would have relieved the patient's suffering, or have prevented her from growing worse, and after the operation she would necessarily grow better. When such conditions have existed for a long period, injury is done to the nervous system, which injury is not immediately removed on removing the cause, no more than taking away a cutting knife will heal at once the cut already made.

CASE XI.—A teacher by profession, twenty-five years of age, married six years, no children. For the last five years she had been an invalid, unable to attend to her household duties, and as incapable of being a wife as a mother. Her physician called me in consultation; the patient lay helpless in bed, with an anxious expression of countenance and a disturbed mental condition. She took no interest in life; she was so weak and so great were her paroxysms of suffering that a number of times her husband and mother thought she was dying. She complained of constant and agonizing pain in the lower part of the pelvis; said that defecation gave her most extreme distress—"it hurt something inside." The patient was weak and reduced in flesh, weighed about seventy pounds, temperature 101°, pulse

* This case was reported in the Medical Record, April 11, 1885.

120. The ovaries were enlarged, extremely sensitive, and low down in the sac of Douglas, behind a retroverted uterus. The tubes were enlarged, inflamed, and adherent. The patient had symptoms of insanity, and had talked of self-destruction.

She entered the Woman's Hospital of Brooklyn, brought to it in her husband's arms, was nervous to such a degree that she was all the time like a frightened deer, often threatening to jump from the window, and all the time with hallucinations, some of which could not be dispelled. Every operation on her bowels produced extreme pain, a faintness, and almost a death-like weakness. Menstruation was accompanied by suffering so agonizing, and a prostration so extreme, that it did not seem possible that her feeble frame could bear up.

In her case it was trouble with both the tubes and ovaries; the condition of either was sufficient to have produced great suffering, and their removal gave the only chance for future health, mental or physical. The operation was performed in July, 1887. Dr. A. M. Jacobus was present and assisted. The patient was carried in the nurse's arms to the operating room, and was happier at the prospects of an operation than she had been at any time I had ever seen her. She made a good recovery; at the end of the second week she rode out, went up and down stairs without assistance, and her mental condition seemed more natural. At the end of the fourth week she accompanied her husband home, mounted the elevated railroad without help, and that day walked as much as a mile. After her return home her mental and nervous conditions continued to improve, and soon she was able to attend to her household duties.

Microscopical examination showed that the ovaries were in a state of intense acute oophoritis and contained many large anomalous menstrual bodies. The Fallopian tubes were marked by interstitial inflammation.

The cause of the gyroma in this case was possibly the discharge of pus from the Fallopian tubes, which excited repeated attacks of pelvic peritonitis. The peritonitis caused inflammation of the ovaries, or the ovaries may have been

inoculated directly by pus from the tubes. The inflammation of the ovaries caused the formation of the gyroma. The gyroma increased yet more the oophoritis, and produced such serious disturbances in the physical and mental conditions as would soon have ended in insanity and death.

The Changes that take Place in the Graafian Follicle and in the Ovarian Tissue shortly after the Menstrual Discharge of the Ovum.—Fig. 1 represents the menstrual follicle ten or twelve days after menstruation. It is from Case XI.

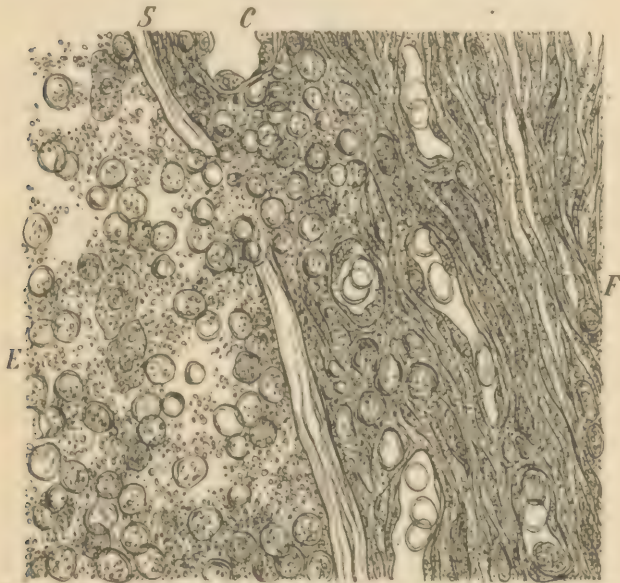


FIG. 1.—Menstrual follicle, 10 to 12 days after rupture, $\times 600$. E, extravasated blood; S, so called structureless membrane; C, capillary blood vessels; F, fibrous connective tissue.

Laparotomy in this case was performed a few days after menstruation, and as the ovum is discharged a few days before menstruation, the time that had elapsed between the

discharge and the removal of the ovaries was ten or twelve days.

The only remnant of the previous (Graafian) follicle is the so-called structureless or basement membrane which is broken, not only at the spot where the ovum escaped, but also in many other places. This follicular membrane in no instance is perfect and unbroken after menstruation is over. Within the follicular cavity there are scanty remnants of lining epithelia, coagulated albumin, and a vast number of blood corpuscles. Wherever there is an interruption in the continuity of the follicular wall we invariably see some hæmorrhage outside of it into the ovarian tissue. At the period mentioned already a distinct inflammatory reaction is observable. This is shown by the presence of a varying number of highly refracting, homogeneous, or more or less granular inflammatory corpuscles in the close vicinity of the follicular wall, whereas a little distance away the bundles of fibrous connective tissue as well as of smooth muscles are reduced into a protoplasmic condition known to be the initiation of inflammation. Even in a normal process such as menstruation is, the repair of losses of substance which necessarily follows the rupture of a ripe Graafian follicle is identical with what we know as plastic or reparative inflammation.

The constituents of the blood-clot—namely, red blood-corpuscles, white blood-corpuscles, albumin, and fibrin—do not become organized or partake in the formation of a tissue of repair.

The so-called structureless walls seem to remain inactive throughout the whole process of repair, at least in its normal course. The medullary tissue, filling up the previous follicular cavity, is gradually transformed into myxomatous connective tissue, destitute, as a rule, of blood-vessels, showing now and then cavities, probably caused by a liquefac-

tion of the myxomatous substance, improperly termed cysts (Fig. 2). Not infrequently such a transformation into myx-

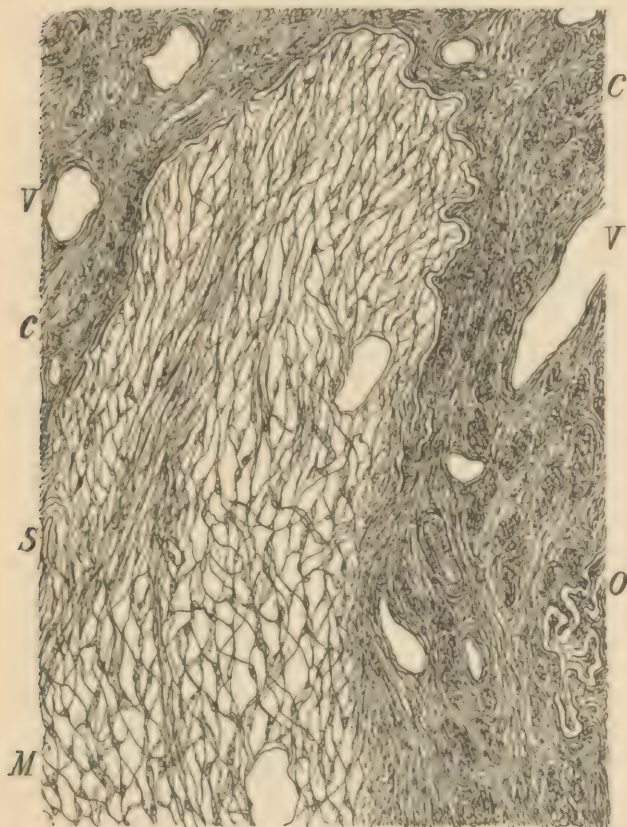


FIG. 2—Normal menstrual body, $\times 100$. C, C, cortex of ovary; S, so-called structureless membrane, broken; M, myxomatous tissue filling the previous follicle; O, old menstrual body—remnants of structureless membrane; V, V, veins.

omatous tissue is seen not only within the follicular cavity, but outside of it, so much so that the original structureless

membrane of the follicle appears imbedded in a myxomatous tissue, occupying a more or less area of the ovarian tissue, mostly at the boundary between the cortex and medulla. A varying number of yellowish-brown pigment clusters is often met with in the myxomatous tissue, inside or outside the follicular wall, and also in the adjacent, apparently unchanged ovarian tissue. The presence of such pigment clusters is due to the previous menstrual hemorrhage. With advancing age the myxomatous tissue becomes less and less, until nothing is left of the original follicular wall but the so-called structural ss membranes distinctly convoluted and imbedded in ovarian tissue.

Corpora Lutea Spuria, and Corpora Lutea Vera.—It is asserted, and generally believed to be true, that, should pregnancy follow menstruation, the changes of the Graafian follicle are much more pronounced, causing the appearance of a heavy connective-tissue wall around the clot of blood which is thought to be delayed in the process of absorption. The cicatricial depression on the surface of the ovary is but slightly marked after menstruation, but is said to be very pronounced after pregnancy. Frequent attempts have been made to overthrow this distinction between a menstrual and a gravidity corpuscle, the so-called corpus luteum spurium, and corpus luteum verum. From time to time there have been many facts presented contradictory to such a distinction. I think this whole theory can now be disproved. What observers have termed corpora lutea vera were evidently nothing else but anomalous menstrual bodies and endothelioma, changing to angeioma and hæmatoma. I have seen ovaries of women who had never borne children and still had sometimes very pronounced cicatrices on the surface of the ovary. Whenever I cut into such cicatrix I find what old writers called corpora lutea vera, which were nothing else than anomalous menstrual bodies or endothelioma, reaching the

surface, especially a prolongation from the central mass of coagulated fibrin. I have examined the ovaries of a woman

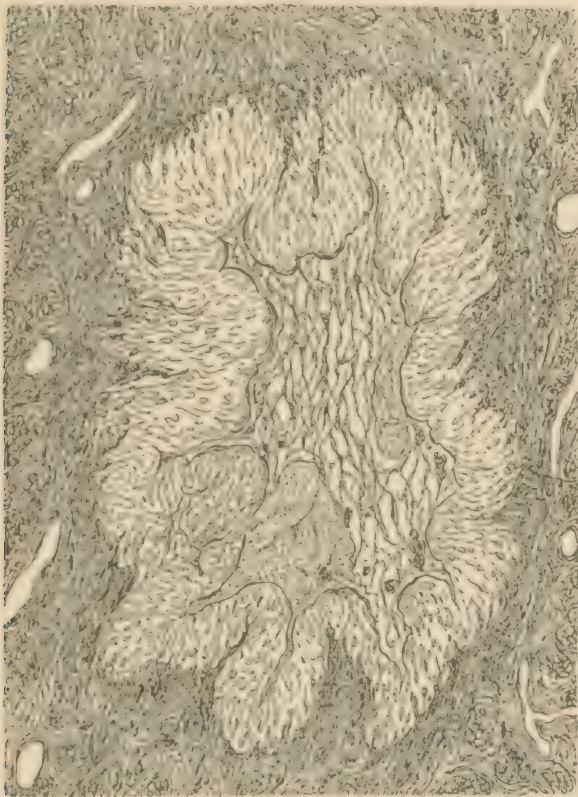


FIG. 3.—Anomalous menstrual body. The original follicular structureless membrane broadened, convoluted, blending with inflammatory tissue around the periphery, inclosing myxomatous tissue.

who had nine children, and but one cicatricial depression could be found in the left ovary. This proved to be an extended myxomatous menstrual body differing from the so-

called spurious corpora lutea only in bulk, but otherwise identical with a menstrual body in every respect. The right ovary of this woman was lobated and crowded with retractions, and, upon microscopical examination, proved to be the site of an extended endothelioma.

Both normal and morbid follicular walls are convoluted, the convolutions increasing in number with the advance of the morbid process. The structureless membrane or follicular wall sometimes becomes enlarged by transforming surrounding ovarian tissue into its own.

On watching the periphery of this formation, which spreads like flames or an opening flower into the surrounding ovarian tissue, we see either an abrupt termination or a gradual blending of one into the other. Where the latter is the case we invariably observe a certain amount of medullary or inflammatory tissue in the adjacent cortex, penetrating the periphery of the follicular membrane and thus causing its flame-like appearance. This feature goes far to prove that the process is materially an inflammatory one, leading to a transformation of the ovarian tissue, including fibrous connective tissue as well as smooth muscle, into an elastic, hyaline mass.

In the slightest degree of the disease we notice peculiarly convoluted, highly refracting masses in the cortical tissue of the ovary, inclosing in a usually small central area myxomatous tissue, in which are protoplasmic masses, and in the myxomatous tissue a varying amount of golden-brown pigment clusters.

In the highest degree of this change we find large territories of the ovaries, transformed into convoluted masses separated into groups by a scanty amount of dense fibrous connective tissue, and surrounded by only scanty vestiges of the cortical tissue of the ovary (Fig. 4).

Low powers suffice to show that at the boundary be-

tween the convolutions there are transitional formations of medullary tissue into the elastic or colloid substance, build-

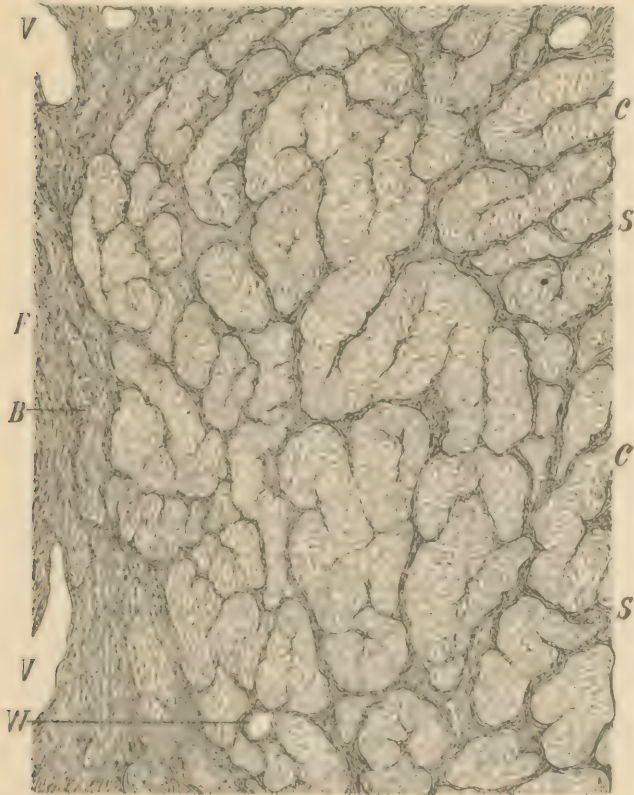


FIG. 4.—Anomalous menstrual body, $\times 100$. F, dense fibrous connective tissue; C, C, convoluted slightly waxy formations; B, beginning appearance of convoluted formations; S, S, septa of fibrous connective tissue between the convolutions; V, V, veins; W, waxy or colloid corpuscle.

ing up the anomalous menstrual bodies. Fig. 4, B, shows such places of transition. If such a place is now magnified

with a power of at least 600 diameters or more (see Fig. 5), we see that the fibrous connective tissue is first reduced to



Fig. 5. Anomalous menstrual body, $\times 600$. C, C, fully developed convoluted formation: R, R, rows of medullary corpuscles, slightly waxy: F, F, fibrous connective tissue.

a protoplasmic condition, followed by the appearance of medullary corpuscles. The latter are the very foundation of gyroma, since they become infiltrated with an elastic or

colloid basis substance, not fully developing into fibrous connective tissue.

In the highest degree of the development of this tissue even the final boundary lines are lost, and the convolutions look almost homogeneous, even to the highest powers of the microscope.

Considerable interest attaches to the formation of pigment clusters both in the myxomatous tissue surrounded by anomalous menstrual bodies, and, though to a smaller extent, in the delicate fibrous connective tissue between the convolutions (Fig. 6).

These clusters hold a varying number of globular, highly refracting bodies, smaller in size than red blood-corpuscles, and known by the term *haematoblasts*. There are pigment clusters differing in their hue from those known to be due to hæmorrhage after bursting of a menstrual follicle. While the latter are golden brown, the former are dark-brown, and in heavy masses jet black. We know that the *haematoblasts* are the formers of coloring matter in so-called melanotic tumors. No doubt here the dark pigment is caused by a transmutation into granules, and afterward by their coalescence into clusters of pigment.

In Fig. 6 we see that some *haematoblasts* hold pigment granules, rendering probable the formation of the large black clusters from the same source. Instances of such pigmentation were rather few in a large number of specimens examined.

In the vicinity of anomalous menstrual bodies we invariably meet with anomalies of blood-vessels. The capillary vessels are at first augmented and conspicuous by their straight course. The veins are dilated to a large extent, often engorged with blood. Arteries, especially those of the medulla of the ovary, are not infrequently in the condition of *endarteritis obliterans* and waxy degeneration of their

middle coats. Fig. 7 gives illustration of the peculiar changes of the arteries upon the approach of gyroma. We



FIG. 6.—Anomalous menstrual body, $\times 600$. F, follicular wall, much broadened; M, myomatous tissue filling follicular space; C, cluster of pigment granules; H, hematoblasts; G, pigment granules in a hematoblast.

see both the smaller and the larger arteries stretched out as if mechanically by the pressure exerted by the gyroma upon

them. The middle coats are enormously enlarged and thickened, the smooth muscle fibers being uniformly transformed



FIG. 7. Sclerosis and waxy degeneration of arteries near anomalous menstrual body. $\times 100$. FF, hyperplastic and waxy wall of follicle; AA, arteries with sclerotic walls in waxy degeneration; C, capillary blood-vessel; W, waxy mass in fibrous connective tissue.

into a waxy or elastic substance, obviously originated in the same manner in which the constituent elements of gyroma

took origin. The calibers of the arteries are extremely narrow and straight. In many places distinct endarteritis obliterans can be traced, leading to obstruction of the caliber and its transformation into a nearly homogeneous waxy mass. Indeed, there are tracts resembling arteries in their course but are entirely solidified and transformed into waxy or colloid masses. The adventitial or fibrous connective tissue is scanty, and the capillaries held therein are stretched out, compressed, and in part solidified to fibrous connective tissue. By tracing the progress of gyroma into the medulla of the ovary, we arrive at the conclusion that the arteries themselves participate in the growth of the gyroma by being first solidified, and in turn transformed into the same peculiarly convoluted masses that are characteristic of gyroma. In fact, there is no tissue forming the ovaries that can escape the transformation into the growth under consideration. I lay stress upon the peculiar changes of the arteries for the following reasons: In my previous article I have rather cautiously alluded to the possibility that endothelioma may originate from solidified and waxy arteries, since I am positive of the participation of such arteries in the production of gyroma, and confidently maintain the origin of endothelioma from such arteries, as endothelioma is invariably the outcome of gyroma.

In but one case have I seen a peculiar change of the arteries to which no other name can be given but cirroid aneurysm in the vicinity of gyroma (Case I, Fig. 8). This evidently is an enormous dilatation of most of the large arteries, probably in consequence of impeded circulation, caused by the presence of gyroma. At the same time the middle coat of the arteries was thin, and in this way an image produced as is observed in rather rare cases in the temporal region in so-called cirroid aneurysm, which consists essentially in a dilatation and convolution of the arteries.

Some of the arteries were transformed into solid glossy masses, either entirely destitute of calibers or exhibiting



FIG. 8.—Circoid aneurysm near anomalous menstrual body, $\times 50$. M. anomalous menstrual body; A A, much dilated arteries with walls; F, fibrous connective tissue with numerous capillaries.

vestiges of such. This results from endarteries obliterans before alluded to, and also often seen in endothelioma.

We may draw the following conclusions :

1. Endothelioma is the outcome of anomalous menstrual bodies.

2. Anomalous menstrual bodies or gyroma are transformations of portions of the ovary into convoluted, highly refracting masses, which in many instances replace most of the ovarian tissues.

3. Anomalous menstrual bodies are the result of a progressive inflammatory process. They invariably cause inflammation in the adjoining ovarian tissue, and are instrumental in the development of mental and bodily derangement.

4. The only way to cure the bodily and mental suffering due to the presence of anomalous menstrual bodies or gyroma, as well as of endothelioma, is extirpation.

5. What previous observers have termed corpora lutea vera are evidently nothing but anomalous menstrual bodies or endotheliomata, changing to angeioma and hæmatoma.



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